

**REMARKS/ARGUMENT**

New claims 12-16 correspond to prior claims except for dependency.

The Advisory Action stated that the claims did not state the method was anionic, the bath was basic and the coating was deposited on the anode. Claim 1 has been changed to explicitly so state. It has also been changed to substitute a numerical percentage for the term "essentially free". In view of these changes, it is respectfully submitted that the rejection under 35 U.S.C. 103 over Antonelli in view of Harris and/or Uchidoi should not be repeated.

Antonelli discloses a cathodic electrocoating composition, which, by definition, means that the composition is acidic so that the polymer coating is deposited electrophoretically at the cathode at the bath. See, e.g., column 4, line 66 to column 5, line 6. In contrast, the claimed method is an anionic electrocoating method in which the composition is basic so that the polymer coating is deposited electrophoretically on the anode in the bath. This fact was apparent from the fact that the composition in claim 1 has a pH of at least 7.8, i.e., the composition is basic, and is now explicitly stated while Antonelli states time and time again that his composition is cathodic. While it is true that the reference states that the composition has a pH of about "5.5-8", it is respectfully submitted that one skilled in the art would recognize that the digit "8" was an obvious typographical error and would read it as "7". As observed in the case of *In re Yale*, 168 U.S.P.Q. 46 (CCPA 1970),

Since [the skilled person would recognize when reading the reference] an obvious error, it cannot be said that one of ordinary skill in the art would do anything more than mentally disregard [the error] as a misprint or mentally substitute [a

correction] in its place. Certainly, he would not be led by the typographic error to use the erroneous [material] even if as a chemist of ordinary skill in the art he would know how to prepare the [material]. He simply would not get so far in the thought process as to determine if he knew how to make [the disclosed entity], as it would have long since been discarded by him as an obvious typographical error.

The person of skill in the art here would note the continuous reference to a cathodic composition, that all of the examples use pHs ranging up to 6.09 and that the invention concerns the use of a neutralizing agent to overcome the basic characteristics of the amine functionality of the principal resin, and immediately recognize that the "8" must be a typographical error and would read it as "7" so as to be consistent with the rest of the disclosure.

Even if the typographical error was not ignored, the particle size of the binder varies from a 10 to 100nm and the conductivity is between 800 and 1300 microsiemens in the present invention. When these characteristics are simultaneously present, there is a special benefit on the coating quality with regard to both its uniformity and excellent corrosion protection. There is nothing in Antonelli (or the other references for that matter) which teach or suggest or make it predictable that such a result was possible.

A prior Office Action observed that in Table I, Antonelli discloses that the particle size of the binder emulsion was between 91 and 169nm and the conductivity of the composition ranged from 1738 to 2540 microsiemens. If this observation was being advanced to suggest the particle size and conductivity have a predictable relationship, then it would be a revision of the reference for description purposes which impermissibly crosses the line at which it becomes a revision of the reference's disclosure. *Medtronic, Inc. v. Cardiac Pacemakers, Inc.* 220 USPQ 97, 103 (Fed. Cir. 1997). Table I shows that a binder with a particle size of 91nm had conductivity of 1973, a particle size of 133nm gave a

conductivity of 1738, a particle size of 135nm gave a conductivity of 1890, and a particle size of 169 provided a conductivity of 2540. No relationship between particle size and conductivity is apparent. The Harris and Uchidoi patents had been cited to show binders having a range of conductivity overlapping that of the present claims. But why would the skilled person select a subrange of particle size from Antonelli to combine with a subrange of conductivity from the other references when the references fail to provide a reason to do so and no reason has ever been advanced by the Office? The only apparent reason is the claims are being used as a template, and that, of course, is improper.

Both of these references relate to cathodic electrocoating compositions solvents. There is nothing in either of these references to teach or suggest an anionic electrocoating composition having the claimed particle size and conductivity would give rise to an improvement in the anti-corrosion properties of the compound formed.

The prior Office Action advanced the proposition that the bath in Antonelli is solvent free based on text which refers to evaporation of "all" of the organic solvent present which allows it to be "reasonably assumed that the organic solvent is not present". That proposition is not tenable. One skilled in the art would immediately recognize that the evaporation of "all" of the organic solvent under the circumstances described is a physical impossibility. Antonelli says that evaporation was effected at a temperature of about 50°C for several hours but heating solvent to a temperature below its boiling point is not going to remove much, if any, solvent. The organic solvent content in Antonelli's bath prior to evaporation is approximately:

	Boiling Point (°C)	Wt.% in final electrophoretic bath
Ethanol	78-79	0.83%
Methanol	64.5	0.44 %
Methyl Isobutyl Ketone	115.8	10.5%
Butoxy Ethanol	169-172.5	0.43%
Total		12%

Evaporation at 50° C obviously can not effectively remove solvent with high boiling points, most particularly the last two solvents with boiling points considerably higher than water (boiling point 100° C) which is used as the major solvent. Even if one assumed that the 50°C heating was sufficient to remove the ethanol and methanol, the other two solvents still account for about 11% by weight of the electrophoretic bath.

Uchidoi teaches that the organic solvent is needed to improve the smoothness of the coating layer. Based on the data given at examples 1 and 2, the organic solvent contents of each resin was about 20%, and diluting with water might cut the organic content down to about half, or about 10%. The use of vacuum would not remove the ketone because the water and ketone have similar vapor pressure at room temperature and would be removed at the same time.

Harris does indicate that the coating composition may include an organic coalescing solvent in an amount between about 0 and 15% by weight, the vast majority of which range falls outside the instant claims. Since Antonelli and Uchidoi teach use of about 10% organic solvent, there is no apparent reason or motivation to employ the very bottom of Harris' range.

The references, alone or in combination do not suggest that if the amount of

organic solvent is restricted to 1% or less at the same time that the particle size does not exceed 100 nm, the conductivity does not exceed 1500 microsiemens, and the pH is at least 7.8, an anodic electrocoating method would result in a composition having the corrosion protecting properties of the present invention.

The rejection of claim 7 under 35 U.S.C. 103 over Antonelli modified by Harris and/or Uchidoi in further view of Kerr should also not be repeated. The Kerr reference does not overcome the basic deficiencies in the combination of Antonelli, Harris and Uchidoi and therefore cannot render claim 7 obvious.

In addition, Harris uses 50-500 volts to deposit a coating at about 300°C over 15-30 minutes and Kerr describes a low voltage deposition from 1 to several hundred volts for a film with a curing temperature between 300 and 750°C. In contrast, the present application describes the deposition of a corrosion protecting film at room temperature employing a driving voltage of about 10 to 30 volts over 15-60 seconds and baking at a temperature of about 100-180°C for 20-30 minutes. Nothing in this combination of references teaches or suggests or allows one to predict that there could be a great lowering in temperature, large shortening of time and drastic reduction in voltage when the water based emulsion has ionic polymeric particles between 10 and 100nm, a pH of 7.8 to 9 and a conductivity of 800-1500 microsiemens/cm and is essentially free of organic solvent.

In light of all of the foregoing, it is respectfully submitted that this case is in condition to be allowed.

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Respectfully submitted,

By /Edward A. Meilman/

Edward A. Meilman

Registration No.: 24,735

DICKSTEIN SHAPIRO LLP

1177 Avenue of the Americas

New York, New York 10036-2714

(212) 277-6500

Attorney for Applicant